```
*******************************************************************
```

TIMEX SINCLAIR USERS GROUP
MILE HIGH CHAPTER

```
*******************************************************************
```
C/O FRANK HOLLAND, 1423 S. PEARL ST., DENVER CO 80210, 733-8103

AUG. 1987. The meeting is on the 27th, at 7:30 PM, at my home.

```
*******************************************************************
```

   Some of you may have noticed that the July newsletter didn't got out. That was because I was in the hospital with a collapsed lung during the last of June. It really wasn't anything SERIOUS, it just took up valuable time that I could have devoted to something else (ANYthing else).

   Anyway, the queue got backed up (job, yard work, love-life, studies, other clubs, etc) and the newsletter had to wait.

   I still have a lot of club projects to catch up on, such as sorting out the exchange programs from Cleveland (and getting Howard the Duck back home), a MC program for Shane, and copying numerous club programs for Rod. I've accomplished 1/2 of each and the summer doldrums are upon us.

   Hopefully, everything will get back to normal (??NORMAL??) soon.

   According to the new E. ARTHUR BROWN catalog: A&J MICRODRIVE won't be building any more units, and there are supposed to be only 30 drives left in stock.

   We lost Tom Beaman to the clutches of IBM so he is selling his Timex equipment.

$175 or best offer:
TS1000 with add-on keyboard.
A&J microdrive (1 drive).
AERCO centronics interface.
many programs.
books, SYNC & SYNTAX magazines.

1-772-2073 HOME (evenings)
1-772-3933 WORK

   Also, we lost Jeff Brothers to a Franklin Ace several months ago. Now he has donated all of his T/S library and equipment to the club. Some of the books will be kept for the permanent library and some will be for sale. The hardware will be for sale.

   I'll keep you informed about what there is.... as soon as he gets it all hauled over here and I can get it cataloged.

Till next month ----- FRANK

:

2068 POWER SUPPLY: MAKE IT COOLER & QUIETER — J. W. Dowell

:

   I have discovered that programs SAVE'd to cassette tapes from
the TS-2068 can have a very high noise/scratch background level
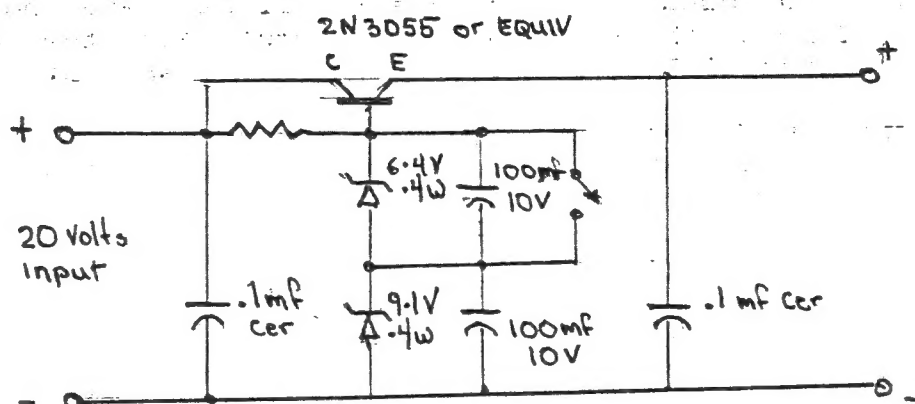making verification and loading a somewhat iffy proposition.
 The best way to determine if you have this problem is to
 monitor the signal on the tape aurally during loading.   The
background noise can be heard before the loader and between the
 leader and the program. If this condition creates a problem
for you, the following will provide a solution.

   The TS-2068, when operated from a DC supply voltage of more
than 13 volts, creates a superflous noise on the internal power
distribution lines, probably from the action of the switching
voltage regulator which supplies the regulated 5 volt supply.
 Somehow, this noise finds its way to the SPKR/TAPE output of
the SCLD chip. For some unknown reason, if the DC supply
voltage is less than 13 volts this noise disapears.   I have
found that a supply voltage of about 8 volts gives very good
results.   There are two drawbacks: At less than 15 volts you get
NO COLOR output and the A&J Microdrive will not work.

   Because I sometimes wish to use the Microdrive and the
Cassette tape storage interchangeable, as in taking programs
from the Microdrive and giving them long term storage on the
cheaper cassettes, I developed a voltage reducer to put in the
cord of the TS-2068 power unit so that I can change the supply
voltage from the normally used 15 volts to a lower 8 volts when
I want to SAVE a program to cassette tape. The supply voltage
can be changed back and forth without affecting any of the
program or data stored in memory.

   Also, by operating the TS-2068 at a normal 15-16 volt level
rather than the power unit's output of about 21 volts, the heat
dissapation in the TS-2068 is reduced considerbly.

   The schematic for the voltage reducer is self-explanatory.
 Two words of caution, however.   Although the regulating
transistor, 2N3055 or similar, is capable of passing many amps
of current, it must be well heat sinked as it dissipates about
5 watts wnen delivering the low voltage output.   When cutting
the cord of the power unit, verify the polarity of the leads
when they are reconnected remembering that the outer contact of
the concentric connector is positive and the inner contact is
negative.

GETTING THE RIGHT PROPORTIONS

-Wes Brzozowski, SINCUS

Before reading too far into this, go grab a newspaper or some other publication that has print laid out in narrow columns. Count the number of letters and blank spaces on several lines. Chances are, you'll find that each line contains a DIFFERENT number of characters.

This is done with a method called Proportional Printing. It turns out that fat characters like M take take up a whole lot more space than the tiny letter i, so each character is given only as much room as it needs. Not only is this much more pleasing to the eye, it allows a surprising amount of extra text to be squeezed into the same amount of space.

Our TS2068s normally display 32 or 64 (and now 85) columns of text, with each character taking up the same width, no matter what its size. It seems that we should be able to improve this somewhat.

Actually, the job has already been done for us. In the Nov. 1985 issue of *YOUR SPECTRUM*, in the article "All Out of Proportion", such a program is given. Unfortunately, it does have a number of defficiences. I've corrected as many of these as are practical (though thay can still be annoying at times) and presented it here for your use. Note that the Spectrum program and my perversion of it here are radically different in many ways. If you've got the old version, you'll still have to completely retype it for the TS2068. Still, they do function somewhat alike, and you might find the text of that article to be helpful.

For those who have that original article, the main differences are: 1) the code is modified to run on a TS2068, 2) machine code is initially entered through DATA statements, eliminating the need for a hex loader, 3) the character fonts are MUCH improved, and you don't have to type in the pixel patterns for each, because my program derives the patterns from the Timex patterns, already in ROM, 4) the code works as in OVER 0, rather than OVER 1, so if you print over a space that already contains text, you won't get such an awful mess, and 5) the TAB function is also implemented in the proportional mode.

This article contains two programs; type in and RUN the first one. After a long wait, it will SAVE the true proportional printing program to tape. When you reload that one (no waiting required, from here on) you'll be ready to begin.

It starts out with a little demonstration of proportional printing. This redefines the LPRINT command, so it will conflict with your use of a printer. I haven't found this to be any bother in the types of programs I've used it in. Still, if there's sufficient interest, it shouldn't be too hard to produce an add-on program that inserts a "proportional print" channel, and attaches it to an unused stream. This could allow your normal printer to work (in its normal mode) in conjection with proportional printing on the screen. In the mean time, if your printer supports a COPY function, that should work with this program, as is.

In any case, LPRINT now prints to the screen in proportional mode, and PRINT continues to work like it always does, so you can mix BOTH methods in your program at once. However, both maintain their own separate screen locations, so you can easily print to different parts of the screen with each.

For proportional screen positioning, you can use LPRINT AT and LPRINT TAB commands. However, note that the old AT and TAB

functions use screen positions that assume all characters are 8 pixels wide. This would never do for proportional printing, so when you use AT or TAB with LPRINT, you specify the X and Y locations in PIXELS, not in characters. This means you can place your characters anywhere you want on the screen, right down to the pixel level. The BASIC program, from lines 3030 on give a reasonable demonstration of how it works.

The *YOUR SPECTRUM* article also included a font designer program, which is included here, but this is optional. To move the cursor, use the Q, A, O, and P keys. Use M and N to turn a pixel on or off. F keeps the design, D displays a character, U displays the entire character set and S and J save and load the character set. LOAD in a SAVEd character set to the main program with LOAD "" CODE 64208. Once loaded into the proportional print program, you can save the program and fonts together, and never bother with the fonts again.

The proportional printing fonts require one new thing we never worried about before; you have to specify how many pixel wide your character is. To do this, you design your character to touch the right most border of the 8 x 8 character block you're given. Then, in the top row of pixels, you set each pixel that's in a valid column for that character. Thus, if your character is to be five pixels wide, simply set the right most 5 pixels in the top row (those won't be printed on the screen, don't worry). Don't forget to include one or more pixels for the spacing between characters! In the "standard" character set, I've chosen to have only one pixel width of space between characters, and a "blank space" character is 4 pixels wide. This works fairly nicely, but you can change it to suit your needs.

A small sample of proportional printing is included here. Won't that look nice in your next program?

NOTES from Editor: *A big thanks to Wes, with all Wes does, and it is a lot folks, Wes finds time to do projects for us, Time Designs, answer a lota mail, write programs, find time for family and of course his employer. ALL of the TS family benefits from the generosity of Wes and all the others who contribute their valuable time and talents to their user group and newsletters and BBSs. If you like being on the receiving end of the efforts of others, and do not contribute time, talent or sweat to the efforts of a user group, newsletter or BBS, there will soon be fewer or no sources of information. Several UGs and many BBSs have quit over the past year, several newsletters have reduce their number of issues and no replacements are in sight. Wake up folks, smell the coffee, and lend a hand before it is too late.*

The proportional printing program will be Uploaded to BUBBS under name of WESPPP.BAS. The font program may be uploaded at a later date. Data on BUBBS:(607)693-3359-7 days-24hours a day- 300 baud on from 5pm to 9am weekdays, 24 hours weekends-free.

On pages 7 thru 10 of this issue, as in earlier issues, we are running a printout of the TS2068 ROM disassembly by Wes Brzozowski. We are running extra copies of each page of the ROM Disassembly that we may offer members at the conculsion of the printout a complete set. With this issue we have nine sheets or 18 pages of printout. Our extra copy run is set at 50, it will be made available on a first come first serve basis with a minimal donation requested to cover postage.

```
1160 LET smin=8: LET daddr=daddr
-8
1170 FOR x=1 TO 8
1180 LET s=0: LET r=PEEK daddr:
LET daddr=daddr+1: IF r=0 THEN G
O TO 1220
1190 IF ABS (r/2-INT (r/2))>.1 T
HEN GO TO 1210
1200 LET s=s+1: LET r=INT (r/2+.
1): GO TO 1190
1210 IF s<smin THEN LET smin=s
1220 NEXT x
1225 IF smin=0 THEN LET smin=1
1226 LET q=2↑(smin-1)-1: IF smin
=1 THEN LET q=0
1230 POKE daddr-8,q
1240 NEXT c
1250 POKE 64200,15
1260 FOR j=64201 TO 64207: POKE
j,0: NEXT j
2000 BEEP .25,1: BEEP .25,15: BE
EP .25,1: BEEP .25,15
2010 SAVE CHR$ 253+CHR$ 245+CHR$
8+"ING"+CHR$ 235+"YOU" LINE 300
0
2020 SAVE CHR$ 232+CHR$ 204+CHR$
227+"THE "+CHR$ 175 CODE 64200,
1160
2025 RANDOMIZE USR 64970
2030 GO SUB 8000
2040 STOP
3000 CLEAR 64199: LOAD ""CODE
3010 RANDOMIZE USR 64970
3020 GO SUB 8000
3030 LPRINT
3040 LPRINT "You can now NEW the
BASIC portion away;"
3050 LPRINT "This will Turn Off
the proportional printing..."
3060 LPRINT "But you can turn it
on again, with"
3070 LPRINT TAB 60;"RANDOMIZE US
R 64970"
3080 STOP
8000 CLS : PRINT "This is an exa
mple of the boringold printing.
What else could wewant?"
8010 LPRINT AT 0,50;"Well, we CO
ULD wish for proportional printi
ng;"
8020 LPRINT "Look how neat it is
, and how easy it is to read!"
8030 LPRINT "...Then, count how
many additional characters  we
can get on a line."
8040 LPRINT
8050 LPRINT "REMEMBER...these ch
aracters are the SAME       SIZE
as the standard Timex character
set. Onlythe spacing between the
m has been changed!!!"
8060 RETURN
```

This is an example of the boring
old printing. What else could we
want?

Well, we COULD wish for proportional printing;
Look how neat it is, and how easy it is to read!
—Then, count how many additional characters
we can get on a line.

REMEMBER...these characters are the SAME
SIZE as the standard Timex character set. Only
the spacing between them has been changed!!!

Optional Font Designer Program

```
10 CLEAR 39999
20 LET ba=40000
100 PRINT AT 2,3; "▋▋▋▋▋▋▋▋"
110 FOR f=3 TO 10: PRINT AT f,3
; "▋00000000▋": NEXT f
120 PRINT AT 11,3; "▋▋▋▋▋▋▋▋"
130 LET a=0: LET b=0
200 OVER 1: PRINT AT a+3,b+4; "▋
": PAUSE 2: PRINT AT a+3,b+4; "▋"
: PAUSE 2: OVER 0
210 LET a=a+(INKEY$="a" AND a<7
)-(INKEY$="q" AND a>0)
220 LET b=b+(INKEY$="p" AND b<7
)-(INKEY$="o" AND b>0)
230 IF INKEY$="m" THEN PRINT AT
a+3,b+4; INVERSE 1;"X": PLOT b+
160,(8-a)+151
240 IF INKEY$="n" THEN PRINT AT
a+3,b+4;"O": PLOT INVERSE 1;b+1
60,(8-a)+151
250 IF INKEY$="f" THEN GO TO 30
0
260 IF INKEY$="d" THEN GO TO 40
0
270 IF INKEY$="u" THEN GO TO 50
0
275 IF INKEY$="s" THEN GO TO 10
00
280 IF INKEY$="j" THEN GO TO 10
20
290 GO TO 200
300 INPUT "Which Character? ";c
$
310 IF LEN c$<>1 THEN GO TO 300
320 IF CODE c$<32 OR CODE c$>12
7 THEN GO TO 300
330 LET c=CODE c$
340 FOR f=0 TO 7
350 POKE (c-32)*8+f+ba,PEEK (15
468+(f*256)): NEXT f: RUN
400 INPUT "Which Character? ";c
$
410 IF LEN c$<>1 THEN GO TO 400
420 IF CODE c$<32 OR CODE c$>12
7 THEN GO TO 400
430 POKE 23606,64: POKE 23607,1
55: PRINT AT 2,20;c$: POKE 23606
,0: POKE 23607,60
440 FOR a=0 TO 7: FOR b=0 TO 7
450 IF POINT (b+160,(8-a)+151)=
1 THEN PRINT AT a+3,b+4; INVERSE
1;"X": GO TO 470
460 PRINT AT a+3,b+4;"O"
470 NEXT b: NEXT a
480 LET a=0: LET b=0: GO TO 200
500 PRINT AT 15,0;: FOR f=32 TO
127: PRINT BRIGHT 1;CHR$ f;" ";
: NEXT f
501 PRINT AT 15,0;" ": OVER 1:
FOR f=32 TO 127: POKE 23606,64:
POKE 23607,155: PRINT BRIGHT 1;
CHR$ f;: POKE 23606,0: POKE 2360
7,60: PRINT " ";: NEXT f: OVER 0
: POKE 23606,0: POKE 23607,60
510 BEEP .1,1: PAUSE 0: PAUSE 0
: RUN
1000 INPUT "File Name? ";f$: SAV
E f$CODE 40000,768: RUN
1020 INPUT "File Name? ";f$: LOA
D f$CODE 40000,768: RUN
```

```
10 REM Program to perform Prop
ortional Printing.
15 REM An upgraded version of
an entry in "YOUR SPECTRUM", Nov
1985
20 REM Changes include - Modif
ied for TS2068, Supports TAB, be
tter fonts, and works as in OVER
0, instead of OVER 1
25 REM When you RUN this progr
am, it will SAVE the actual Prop
ortional Print program to tape
30 REM When THAT program is ru
n, all LPRINT statements will do
proportional printing to the sc
reen.
40 REM AT and TAB are supporte
d, but they now refer to pixel p
ositions, instead of character p
ositions.
50 REM It will also be possibl
e to use PRINT, to do non-propor
tional printing on the screen.
60 GO TO 585
70 REM Subroutine to decode th
e following Hexadecimal DATA sta
tements
75 READ n$: LET hi=CODE n$(1):
LET lo=CODE n$(2)
80 IF hi>57 THEN LET hi=hi-7
85 IF lo>57 THEN LET lo=lo-7
90 LET n=16*hi+lo-816
95 RETURN
100 DATA "21","00","A8","22","E
9","FE","2A","4F"
110 DATA "5C","01","0F","00","0
9","01","DE","FD"
120 DATA "71","23","70","C9","E
5","C5","D5","F5"
130 DATA "CD","EA","FD","F1","D
1","C1","E1","C9"
140 DATA "F5","3A","F0","FE","F
E","00","20","15"
150 DATA "F1","FE","18","20","0
6","3E","FF","32"
160 DATA "F0","FE","C9","FE","1
7","20","38","3E"
170 DATA "FD","32","F0","FE","C
9","FE","FF","20"
180 DATA "09","F1","32","E9","F
E","21","F0","FE"
190 DATA "35","C9","FE","FE","2
0","0D","F1","47"
200 DATA "3E","A8","90","32","E
A","FE","AF","32"
210 DATA "F0","FE","C9","FE","F
D","20","0A","F1"
220 DATA "32","E9","FE","3E","F
C","32","F0","FE"
230 DATA "C9","F1","AF","32","F
0","FE","C9","FE"
240 DATA "0D","20","09","CD","2
A","FF","3E","02"
250 DATA "CD","30","12","C9","F
E","20","38","04"
260 DATA "FE","80","38","02","3
E","3F","26","00"
270 DATA "6F","29","29","29","E
B","2A","F4","FE"
280 DATA "19","7E","32","F1","F
E","35","00","22"
290 DATA "F2","FE","01","07","0
0","09","22","EE"
300 DATA "FE","3A","EA","FE","F
E","A9","D2","0A"
310 DATA "FF","CD","13","FF","E
D","4B","E9","FE"
320 DATA "CD","03","26","32","E
D","FE","22","EB"
330 DATA "FE","06","08","C5","2
A","EE","FE","7E"
340 DATA "2B","22","EE","FE","6
F","3A","F1","FE"
350 DATA "16","FF","5F","4F","3
A","ED","FE","FE"
360 DATA "00","28","12","47","2
6","00","CB","3D"
370 DATA "CB","1C","CB","3B","C
B","F8","CB","1A"
380 DATA "A7","10","F3","42","4
B","ED","5B","ED"
390 DATA "FE","1A","A1","B5","1
2","CD","37","FF"
400 DATA "3A","ED","FE","FE","0
0","28","09","13"
410 DATA "1A","A0","B4","12","C
D","37","FF","1B"
420 DATA "2A","EB","FE","FE","CD","F
7","FE","22","EB"
430 DATA "FE","C1","10","AF","3
A","F1","FE","2A"
440 DATA "F2","FE","77","3A","E
9","FE","47","3A"
450 DATA "F6","FE","80","32","E
9","FE","C9","00"
460 DATA "A8","00","00","00","0
0","00","00","00"
470 DATA "00","00","C8","F9","0
0","F5","7C","25"
480 DATA "E6","07","20","0A","7
D","D6","20","6F"
490 DATA "38","04","7C","C6","0
8","67","F1","C9"
500 DATA "3A","F1","FE","2A","F
2","FE","77","CF"
510 DATA "04","06","08","3A","F
1","FE","4F","A7"
520 DATA "CB","39","30","03","0
5","18","F8","78"
530 DATA "32","F6","FE","3A","E
9","FE","80","D0"
540 DATA "AF","32","E9","FE","3
A","EA","FE","D6"
550 DATA "08","32","EA","FE","C
9","E5","FE","7A"
560 DATA "CB","0F","CB","0F","C
B","0F","EE","03"
570 DATA "FE","58","67","6B","3
A","8D","5C","77"
580 DATA "F1","E1","C9"
585 CLEAR 64199: PRINT AT 10,0;
"This Will Take a While...": PRI
NT "   ...Why not take a break?"
590 REM ***********************
610 FOR j=64970 TO 65356: GO SU
B 70: POKE j,n: NEXT j
700 REM ***********************
710 REM Now that the machine co
de is in, we'll derive the compr
essed fonts from the standard Ti
mex character set
1000 LET addr=PEEK 23606+256*PEE
K 23607+256+8: LET daddr=64208
1010 FOR c=1 TO 95
1020 LET smin=16
1030 FOR x=1 TO 8
1040 LET l=PEEK addr: LET addr=a
ddr+1
1050 IF l<16 THEN LET s=16: GO T
O 1090
1060 IF l<32 THEN LET s=8: GO TO
1090
1070 IF l<64 THEN LET s=4: GO TO
1090
1075 IF l<128 THEN LET s=2: GO T
O 1090
1080 LET s=1
1090 IF s<smin THEN LET smin=s
1100 NEXT x
1110 LET addr=addr-8
1120 FOR x=1 TO 8
1130 POKE daddr,(PEEK addr)*smin
1140 LET addr=addr+1: LET daddr=
daddr+1
1150 NEXT x
```